

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): An apparatus for managing at least one home agent of a home network in a network, the apparatus comprising:

a packet analyzer, which receives a packet and analyzes the packet;

a database, which stores information indicating whether the home agent operates normally according to the result of the analysis; and

a home agent function executor, which performs a home agent function in place of the home agent when the home agent does not operate normally.

2. (original): The apparatus of claim 1, wherein the database comprises:

a binding check database, which stores information indicating whether a binding acknowledgement message for a binding update message has been received within a predetermined time; and

a proxy binding cache memory, which stores information on the home agent that does not operate normally.

3. (original): The apparatus of claim 2, wherein the binding check database comprises a home agent address and a care-of-address, which are included in the binding update message, and a count.

4. (original): The apparatus of claim 3, wherein the count is increased by one whenever the binding update message is received.

5. (original): The apparatus of claim 2, wherein the proxy binding cache memory comprises a home agent address, a home address, a care-of-address, a lifetime, and a sequence included in the binding update message.

6. (original): The apparatus of claim 1, further comprising a received packet storage unit, which stores the received packet.

7. (original): A method of managing one or more home agents of a home network in a network, the method comprising:

determining whether a home agent operates normally using a database, which stores information on home agents that do not operate normally; and

when it is determined that the home agent does not operate normally, performing a home agent function in place of the home agent.

8. (original): The method of claim 7, wherein the database comprises:

a binding check database, which stores information indicating whether a binding acknowledgement message for a binding update message has been received within a predetermined period of time; and

a proxy binding cache memory, which stores information on the home agents that do not operate normally.

9. (original): The method of claim 8, wherein the binding check database comprises a home agent address and a care-of-address, which are included in the binding update message, and a count.

10. (original): The method of claim 9, wherein the count is increased by one whenever the binding update message is received.

11. (original): The method of claim 8, wherein the proxy binding cache memory comprises a home agent address, a home address, a care-of-address, a lifetime, and a sequence of a received packet.

12. (original): A method of managing a home agent of a home network and a home agent of an Internet Service Provider (ISP) network in a network, the method comprising:

storing a packet directed to the home network;

determining whether the packet is a binding update message; and

when a binding acknowledgement message for the binding update message is not received within a predetermined period of time, performing a home agent function in place of the home agent of the home network.

13. (original): A home agent management method comprising:

reading a network prefix recorded in a destination address field of a packet received from an access router;

forwarding the packet to a network corresponding to the network prefix;

when the network prefix corresponds to a home network, storing the packet received from the access router;

determining whether the packet is a binding update message;

when it is determined that the packet is the binding update message, extracting a home agent address and a care-of-address from the binding update message;

determining whether an entry comprising the home agent address and the care-of-address has been stored in a binding check database;

when it is determined that the entry has not been stored in the binding check database, adding the entry to the binding check database, increasing a count corresponding to the entry, and deleting the packet and when it is determined that the entry has been stored in the binding check database, increasing the count and determining whether the count reaches a predetermined value; and

when it is determined that the count does not reach the predetermined value, deleting the packet and when it is determined that the count reaches the predetermined value, storing the entry in a proxy binding cache, deleting the packet, and deleting the entry from the binding check database.

14. (original): The method of claim 13, wherein the binding check database comprises a home agent address and a care-of-address, which are included in the binding update message, and the count.

15. (original): The method of claim 13, wherein the proxy binding cache comprises a home agent address, a home address, a care-of-address, a lifetime, and a sequence of the received packet.

16. (currently amended): A computer readable physical ~~recording~~storage medium having recorded therein a program for executing on a computer a method of managing one or more home agents of a home network in a network, the method comprising:

determining whether a home agent operates normally using a database, which stores information on home agents that do not operate normally; and

when it is determined that the home agent does not operate normally, performing a home agent function in place of the home agent.

17. (currently amended): A computer readable physical ~~recording~~storage medium having recorded therein a program for executing the method of claim 12 on a computer.